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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,082	02/13/2004	Takahiro Matsumoto	396.43509X00	4125
20457	7590	01/25/2007	EXAMINER	
ANTONELLI, TERRY, STOUT & KRAUS, LLP			VIJAYAKUMAR, KALLAMBELLA M	
1300 NORTH SEVENTEENTH STREET				
SUITE 1800			ART UNIT	PAPER NUMBER
ARLINGTON, VA 22209-3873			1751	
SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE		DELIVERY MODE	
3 MONTHS	01/25/2007		PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/777,082	MATSUMOTO ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Kallambella Vijayakumar	1751

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 27 October 2006.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 6-11 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-5 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 13 February 2004 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_.
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_.

***Detailed Action***

- Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.
- Applicant's election of Group-I, Claims 1-5 with traverse in response to Election-Restriction is acknowledged. The traversal is on the ground that there is no proper basis for restricting Groups I and II is not persuasive (Response, Pg-1, Para-2) for the reasons cited in the last office action, and further, the rejections cited in the present office action clearly show that the claimed ultrafine powder can be made by a totally different process and the restriction is proper. With regard to the argument that the ultrafine particles of Gp-I (intermediate) are so related to Gp-III and Gp-IV (Pg-2, Para-2) is not persuasive for the reasons cited in the last office action, and there is nothing on the record that they are obvious variants. The rejoicing of the non-elected claims upon allowance of elected invention will be dealt in accordance with MPEP 821.04. The restriction requirement in the last office action is still deemed proper for the purposes of the examination, and made FINAL.

Claims 1-11 are currently pending with the application. Claims 6-11 are withdrawn from further consideration.

- The examiner has considered the IDS filed 06/01/2006.

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A (1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the examiner has

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cited by the references on form PTO-892 and/or the applicant/s have cited them on PTO-1449, they have not been considered.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-5 are rejected under 35 U.S.C. 102(b) as anticipated by Lewis et al (US 5,424,129).

Lewis et al teach a composition comprising an electrically conductive core particle of SnO<sub>2</sub> encapsulated with a continuous inert dielectric layer of SiO<sub>2</sub> (Cl-16, Example-IX, Table-2, Ln 32-36; Claim-1). The particle size of the core was 5-50 nm and the thickness of the outer encapsulating layer/shell was 1-30 nm. The shape of the core particle was approximately spherical (Cl-13, Ln 35-37). With regard to the property in claim-2, the prior art composition is substantially same or indistinguishable from composition obtained by applying a layer of dielectric on the surface of the particle claimed by the applicants and identical compositions possess identical properties. The prior art core particle size and the outer shell thickness ranges overlap with the claimed particle size and the layer thickness in claims 1 and 4. All the limitations of the instant claims are met.

The reference is anticipatory.

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2. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by MTI Data Sheet (Copyright 2002).

MTI discloses a spherical nanopowder of aluminum with a particle size of 18 nm that has been partially passivated with oxygen for shipping and without affecting its performance, and the nanopowder containing less than 10% oxygen (electron micrograph and data sheet). The formation of a dielectric layer of an insulating and protective surface layer of alumina over Al nanopowder/ nanoparticle surface is anticipated over the natural tendency of oxidation of Al-metal by oxygen forming a natural oxide protective layer due to passivation of the metal.

The examiner notes a product by process limitation “applied” in claim-1, and asserts that the prior art composition will be substantially same or indistinguishable from that produced by the instant claimed process step. When the reference teaches a product that appears to be the same as the product set forth in a product-by-process claim although produced by a different process, the claim is not patentable. See *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983) And *In re Thorpe*, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). See also MPEP §2113.

With regard to the property in claim-2, the prior art composition is substantially same or indistinguishable from composition obtained by applying a layer on the surface of the particle claimed by the applicants and identical compositions possess identical properties. All the limitations of the instant claims are met.

The reference is anticipatory.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claim 5 is rejected under 35 U.S.C. 103(a) as being obvious over MTI Data Sheet (Copyright 2002) in view of Martinez, et al (US Patent 5,294,374).

The disclosure on the composition of Al-nanopowder by MTI as set forth in rejection-2 under 35 USC 102(b) is herein incorporated.

The prior art is silent about the thickness of the oxide film over the surface of Al-nanopowder.

However, the instant claimed thickness of the insulating dielectric oxide film over Al nanopowder will be obvious over Martinez et al that discloses a natural oxide coating of about 40 angstroms (4 nm) for aluminum metal particles (Cl-11, Ln 11-22).

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kallambella Vijayakumar whose telephone number is 571-272-1324. The examiner can normally be reached on 8.30-6.00 Mon-Thu, 8.30-5.00 Alt Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas McGinty can be reached on 571-272-1029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KMV  
January 11, 2007.



K. M. Vijayakumar  
Patent Examiner